APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

YASHINA, R.S.; GINZBURG, I.I.

Checking on the use of O.P. Mehra, and M.L. Jackson's method of the removal of iron oxides from soils and clays for mineralogical purposes. Kora vyvetr. no.5:398-403 '63. (MIRA 16:7)

1. Institut geologii rudnykh mestorozhdeniy, petrografii, mineralogii i geokhimii AN SSSR.

(Mineralogical chemistry)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

GINZBURG, I.I.

Remarks on the upper zone of weathering surface. Kora vyvetr. no.5:374-379 '63. (MIRA 16:7)

1. Institut geologii rudnykh mestorozhdeniy, petrografii, mineralogii i geokhimii AN SSSR.

(Weathering)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

GINZBURG, I.I.; ANDRUSHCHENKO, P.F.

Some results of the conference on the composition of metallogenic and forecasting maps of supergene nickel deposits. Kora vyvetr. no.6:312-318 '63. (MIRA 17:9)

1. Institut geologii rudnykh mestorozhdeniy, petrografii, mineralogii i geokhimii AN SSSR, Moskva.

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

GINZBURG, I.I.

Fragments of reminscences. Och.po ist.geol.znan. no.11:46-49 '63.
(MIRA 16:7)

(Vernadskii, Vladimir Ivanovich, 1863-1945)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

GINZBURG, I.I.

Karst and ore formation. Trudy MOIP 12:46-53 '64.

(MIRA 18:1)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

GINZBURG, I.M., inzh.

Automatic control of the load on a scraper motor. Mekh. stroi. 18 no.11:17-18 N '61. (MIRA 16:7)

(Scrapers) (Automatic control)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

GINZBURG, I. M.

USSR/Physical Chemistry - Molecule, Chemical Bond. B-4

Abs Jour : Referat Zhur - Khimiya, No 1, 1957, 141

Author : Ye.F. Gross, I.M. Ginzburg.
Inst : -
Title : Spectra of Composite Scattering of Crystal of Molecular Compounds.

Orig Pub : Optika i spektroskopiya, 1956, 1, No 5, 710-714

Abstract : With a view to investigate the influence of the formation of molecular compounds on spectra, the spectra of monocrystals $SbCl_3$ (I) and $SbBr_3$ (II) were studied. Low frequencies of (in cm^{-1}) 35, 50, 66, 96 and 63 and frequencies of intramolecular oscillations (IMO) of 133, 152, 317, 342 for I and 92, 110, 227 and 236 for II were found. The minimum and maximum moments of inertia ($I_x \cdot 10^{-40}$ and $I_y \cdot 10^{-40}$ g x sq.cm) of the molecules of I and II are: $I_x = 303$ and 696, $I_y = 523$ and 1210. The low frequencies are satisfying the relation $_1^2 / _2^2 = I_2 / I_1$ (1) valid

Card 1/3

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

Abs Jour : Ref Zhur - Khimiya, No 1, 1958, 141

for the frequencies of the rotational oscillations in isomorphous crystals. The low and the IMO frequencies of $2SbCl_3 \cdot C_6H_6$ (III) and $2SbBr_3 \cdot C_6H_6$ (IV) are as follows:

22, 43, 64, 83, 110, 117 (III); 22, 42, 58, 71 (IV); and 136, 162, 312, 327, 350, 606, 989, 1176, 1573, 1607, 3062 (III); 89, 102, 213, 225, 241, 990, 3065 (IV). The comparison of the spectra of I, II, III and IV leads to the conclusion that the low frequency spectra of I, II and III, IV differ essentially, while the IMO frequencies of III, IV coincide with the IMO frequencies of I, II and C_6H_6. Consequently, the molecules of I, II and C_6H_6 move in lattices as a whole with reference of one to another. The frequencies 22 and 42 - 43 of III and IV refer to the rotational oscillations of C_6H_6. The frequencies 64, 83, 110 (III) and 42, 58, 70 (IV) satisfy (1) and correspond to the rotational oscillations of the molecules of I and

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

USSR/Physical Chemistry - Molecule, Chemical Bond. B-4

Abs Jour : Ref Zhur - Khimiya, No 1, 1958, 141

II located in approximately equal force fields.

Card 3/3

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

YAL'TSOV, A.V.; GINZBURG, I.M.

Derivatives of imidazole. Part 34. Zhur. ob. khim. 34 no.5: 1624-1633 My '64. (MIRA 17:7)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

L 1301-66 EWT(m)/EPF(c)/EWP(j)/EMA(c) RPL WW/RM

ACCESSION NR: AR5014392 UR/0058/65/000/004/D029/D029

34

SOURCE: Ref. zh. Fizika, Abs. 4D220

AUTHOR: Ginzburg, I. M. 44,55

TITLE: Investigation of the hydrogen bond in trifluoroacetic acid-ester systems by studying their infrared spectra 7,44,55

CITED SOURCE: Sb. Spektroskopiya. M., Nauka, 1964, 167

TOPIC TAGS: IR spectrum, fluorinated organic compound, acetic acid, ester, spectrographic analysis, chemical bonding

TRANSLATION: The IR spectra of trifluoroacetic acid-ester systems are studied. Spectra for mixtures of these materials always show a band for undisturbed C=O oscillation in the ester, and no bands which correspond to acid dimers. This shows that the esters form a hydrogen bond with oxygen atoms in the carbonyl and alkoxy radicals. When there is an excess of acid, a 1785 cm^{-1} band which corresponds to acid dimers appears in the spectrum side by side with bands for free and bound carbonyl radicals in the ester and the acid carbonyl band. It is concluded that the molecules in the ester form a strong hydrogen bond only with one molecule of the acid at the expense of some single oxygen molecule. Yu. Kissin.

Card 1/1 SUB CODE: OC, OP ENCL: 00

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

GINZBURG, I.I.

Use of [illegible]
[illegible]

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

GINZBURG, I.M.; PETROV, E.S.; SHATENSHTEYN, A.I.

Comparison of the electron-donor properties of the series of aliphatic and cyclic ethers during interaction with CH_3OD. Zhur. ob. khim. 34 no.7:2294-2298 Jl '64 (MIRA 17:8)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

GINZBURG, I.M.; LOGINOVA, L.A.

Spectroscopic manifestations and energy of the intramolecular hydrogen bonding in thiosalicylic acid. Dokl. AN SSSR 156 no. 6:1382-1385 Je '64. (MIRA 17:8)

1. Leningradskiy khimiko-farmatsevticheskiy institut. Predstavleno akademikom A.N. Tereniym.

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

GINZBURG, I. P.

"On the Question of the Motion of Real Gases at High Velocities," Ucheniye Zapiski LGU, No.42, pp. 5-60, 1939

Dissertation for the degree of Bachelor of Physico-Mathematical Sciences. Presented in December 1937.

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

1. GINSBURG, I. P., BORETSKAYA, B. A., OZHEGOVA, A. I., L'NEGOVA, A. N.

2. USSR (600)

4. Manganese Ores - Polunochnoye Deposits

7. Study of the composition of the manganese ores of the Polunochnoye deposit. (Abstract.) Izv. Glav. upr. geol. fon. no. 2, 1947.

9. Monthly List of Russian Accessions, Library of Congress, March 1953. Unclassified.

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

GINZBURG, I.P.

[redacted]

Sufficient stability conditions for the solution of the equation; $y'' + py' + qy = 0$. Uch.zap.Len.un.no.114:200-204 '49.

(Equations, Theory of) (MIRA 10:3)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

GINZBURG, I.P.

Equations for the motion of variable-mass solids. Uch.zap.Len.un. no.114:205-216 '49. (MLRA 10:3)
(Motion)

GINZBURG, I. P.

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

PA 251T100

USSR/Physics - Hydraulic Impact Jun 52

"Computation of Hydraulic Impact in Pipes With Variable Cross Section," D. M. Volkov, I. P. Ginzburg

Vest Leningrad U, Ser Mat, Fiz, Khim, Vol 7, No 6, pp 29-46

Generalizes results by I. F. Livurdov (Iz Artiller Akad imeni Dzerzhinskogo, 18 (1944)) for the case where wall thickness of pipe and sound velocity are variables, and presents solutions of problem for a wide class of pipes with variable cross sections.

251T100

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

GINZBURG, I.P.

On sufficient stability conditions of zero solutions for n-order linear homogeneous differential equations and n-homogeneous differential equation systems with variable coefficients. Vest.Len.un.9 no.5:53-65 My '54. (Differential equations) (MLRA 9:7)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

GINZBURG, I.P.; GRIB, A.A.

Water hammer in a complex conduits. Vest.Len.un. 9 no.8:107-128 Ag '54.
Vest.Len.un. 9 no.8:107-128 Ag '54. (MLRA 8:7)
(Water hammer)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

GINZBURG, I. P.

USSR/Physics - Gas flow

Card 1/1 Pub. 127 - 6/12

Authors : Ginzburg, I. P.

Title : Stabilized outflow of a gas from the containers producing friction and local resistances

Periodical : Vest. Len. un. ser. mat. fiz. khim. 5, 55-84, May 1955

Abstract : A method of computing the amount of gas flow from a container, considering friction and local resistances, is described. Various cases of gas flow (adiabatic, long pipes with thermal or isothermal processes during the flow) are considered. Tables; graphs; diagrams.

Institution : ....

Submitted : April 16, 1954

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

GINZBURG, I. P.

124-11-12679

Translation from: Referativnyy Zhurnal, Mekhanika, 1957, Nr 11, p 51 (USSR)

AUTHOR: Ginzburg, I. P.

TITLE: The "Water Hammer" in Pipes Made of Elastic-Viscous Materials. (Gidravlicheskiy udar v trubakh iz uprugo-vyazkogo materiala).

PERIODICAL: Vestn. Leningr. un-ta., 1956, Nr 13, 99-108

ABSTRACT: The A. establishes the equations of the water hammer in a thin-walled pipe having a varying diameter along its length and consisting of an elastic-viscous or plastic material. Discarding the convective terms and assuming a linear frictional function, these equations are reduced to a single differential equation of the fourth or third order. A general solution for this equation is offered for the case of a cylindrical pipe, obtained by means of a Laplace transformation.

N. A. Kartvelishvili

Bibliography: 5 references

Card 1/1

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

AKSENOV, A.P.; GINZBURG, I.P., prof., doktor fiziko-matemat.nauk, nauchnyy rukovoditel'.

[Determining the surface temperature and surface friction of cones and a certain class of axisymmetrical bodies of revolution moving with high supersonic speeds; dissertation presented for the degree of Candidate of Physicomathematical Sciences] Opredelenie temperatury na poverkhnosti i poverkhnostnogo treniia konusov i nekotorogo klassa osesimmetrichnykh tel vrashcheniia, dvizhushchikhsia s bol'shimi sverkhzvukovymi skorostiami; avtoreferat dissertatsii na soiskanie uchenoi stepeni kandidata fiziko-matematicheskikh nauk. Leningrad, 1957. 7 p. (MIRA 12:8)

(Aerodynamics, Supersonic) (Friction)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

SOV/124-58-8-8424

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 8, p 12 (USSR)

AUTHOR: Ginzburg, I. P.

TITLE: Basic Equations for the Dynamics of the Control of Water Turbines (Osnovnyye uravneniya dinamiki regulirovaniya gidroturbin)

PERIODICAL: Uch. zap. LGU, 1957, Nr 217, pp 144-184

ABSTRACT: The article gives a detailed account of the derivation of an equation for the process of controlling a water turbine with the aid of a hydraulic regulator. Equations are given for the turbine controlled, the sensor element, the servomotors, the gate valve, and the penstocks. The equations evolved are compared with those appearing in the fundamental work on turbine control by A. Stodola. The present equations, however, are not investigated.

M. A. Ayzerman

Card 1/1

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

10(0) PHASE I BOOK EXPLOITATION SOV/2053

Ginzburg, Isaak Pavlovich

Prikladnaya gidrogazodinamika (Applied Hydro- and Gas Dynamics) /Leningrad/ Izd-vo Leningr. univ., 1958. 337 p. Errata slip inserted. 4,000 copies printed.

Sponsoring Agency: Leningrad. Universitet imeni A. A. Zhdanova. Redaktsionnoizdatel'skiy sovet.

Ed.: Ye. V. Shchemeleva; Tech. Ed.: S. D. Vodolagina.

PURPOSE: This textbook is for students of physics-mathematics and mathematics and mechanics departments at universities and other institutions of higher learning. It may also be useful to engineers and scientific personnel conerned with problems of design and research on engines, gas exhaust, pneumatic installations, etc.

Card 1/11

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

COVERAGE: This textbook on applied hydro- and gas dynamics is based on a series of lectures on mathematical mechanics given by the author at the Leningrad State University. The book develops the basic equations of hydraulics and the theory of similitude and dimensional analysis. It treats uniform and unsteady motions of fluids and gases in straight and curved pipes of uniform and varying cross section, the discharge of fluids and gases from containers, the time required to fill and empty vessels, and the reactions of flowing liquids and gases on rigid boundaries due to momentum changes. Examples of the application of these methods to particular engineering problems are presented. Problems of airfoil and cascade theory are not discussed since they are fully treated in other books, such as Professor G. N. Abramovich's Prikladnaya Gazodinamika (Applied Gas Dynamics), etc. In view of Professor K. P. Stanyukovich's detailed monograph, Neustanovivsheyesya dvizheniye sploshnoy sredy (Unsteady Motion of a Continuous Medium), the unsteady motion of gases is considered only in connection with the emptying of vessels. Similarly, problems of unsteady motion of a fluid in rivers and channels are not considered since they can be found in the article by Academician S. A. Khristianovich,

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

"Unsteady Motion in Channels and Rivers", in the collection Nekotoryye novyye voprosy mekhaniki sploshnoy sredy (Some New Problems in the Mechanics of a Continuous Medium) and in V. A. Arkhangel'skiy's monograph Raschety neustanovivshegosya dvizheniye v otkrytykh vodotokakh (Calculation of an Unsteady Motion in Open Water Currents). There are 69 references, 65 of which are Soviet, and 4 translations from German.

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AVAILABLE: Library of Congress (QA 911 . G49)

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APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

KOVALEV, Maksim Antonovich; BELOVA, Aleksandra Vasil'yevna; MARKEVICH, Natal'ya Mikhaylovna; LANDMAN, Vera Gennadiyevna; GINZBURG, I.P., prof., red.; BUSORGINA, N.I., red.; ZHUKOVA, Ye.G., tekhn.red.

[Manual for laboratory work on aerogasdynamics] Rukovodstvo k laboratornym rabotam po aerogazodinamike. Pod red. I.P. Ginzburga. Leningrad, Izd-vo Leningr.univ., 1959. 175 p. (MIRA 13:1)

(Aerohydrodynamics--Handbooks, manuals, etc.)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

PHASE I BOOK EXPLOITATION SOV/5290

Soveshchaniye po prikladnoy gazovoy dinamike. Alma-Ata, 1956

Trudy Soveshchaniya po prikladnoy gazovoy dinamike, g. Alma-Ata, 23-26 oktyabrya 1956 g. (Transactions of the Conference on Applied Gas Dynamics, Held in Alma-Ata, 23-26 October 1956) Alma-Ata, Izd-vo AN Kazakhskoy SSR, 1959. 233 p. Errata slip inserted. 900 copies printed.

Sponsoring Agency: Akademiya nauk Kazakhskoy SSR. Kazakhskiy gosudarstvennyy universitet imeni S.M. Kirova.

Editorial Board: Resp. Ed.: L.A. Vulis; V.P. Kashkarov; T.P. Leont'yeva and B.P. Ustimenko. Ed.: V.V. Aleksandriyskiy. Tech. Ed.: Z.P. Rorokina.

PURPOSE: This book is intended for personnel of scientific research institutes and industrial engineers in the field of applied fluid mechanics, and may be of interest to students of advanced courses in the field.

Card 1/9

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

COVERAGE: The book consists of the transcriptions Of 31 papers read at the conference on gas dynamics which was convened under the initiative of the Kazakhskiy gosudarstvennyy universitet imeni S.M. Kirova (Kazakh State University imeni S.M. Kirov) and the Institut energetiki Akademii nauk Kazakhskoy SSR Institute of Power Engineering of the Academy of Sciences Kazakhskaya SSR) and held October 23-26, 1956. Three branches of applied gas dynamics were discussed, namely: jet flow of liquids and gases, aerodynamics of furnace processes, and the outflow of liquids. The practical significance of the "Transactions" of the conference consists in the adaptation of theory to methods of technical computation and measuring methods related to industrial furnaces and other industrial processes in which aerodynamic phenomena play a predominant role. Eight papers read at the Conference are not included in this collection for various reasons. The authors of the missing papers are: L.D. L'vov (Thermal and Aerodynamic Characteristics of Pulverized Coal Flame Burners) and A.A. Goleyevskiy (Outlines and Physical Models of the Jet Motion Mechanics of Fluids), N.I. Akatnov, Ye. P. Bogdanov, S.V. Bukhman, T.K. Mironenko, A.B. Reznyakov, and G.V. Yakubov. L.G. Loytsyanskiy is mentioned as being in charge of a department of the Kazakh State University, and I.D. Malyukov, Candidate of Physical and Mathematical Sciences, Docent, as a member of the same university. References are found at the end of most articles.

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SOV/5290

Transactions of the Conference (Cont.)

AVAILABLE: Library of Congress

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Card 9/9

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

GINZBURG, I. P.

PHASE I BOOK EXPLOITATION SOV/4630

Leningrad. Universitet

Mekhanika (Mechanics) [Leningrad] 1960. 254 p. (Series: Its: Uchenyye zapiski, no. 280. Seriya matematicheskikh nauk, vyp. 35) Errata slip inserted. 1,725 copies printed.

Sponsoring Agency: Leningradskiy ordena Lenina gosudarstvennyy universitet imeni A. A. Zhdanova.

Resp. Ed.: N. N. Polyakhov, Professor; Ed.: T. I. Kulagina; Tech. Ed.: Ye. G. Zhukova.

PURPOSE: This collection of articles is intended for scientists, engineers at NII s (scientific research institutes) and design offices and also for students of advanced courses in related fields.

COVERAGE: The collection consists of original investigations in the field of modern mechanics including general mechanics, theory of elasticity, and hydroaerodynamics. No personalities are mentioned. References accompany all articles except one.

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

GINZBURG, I.P.

[Possible methods for solving boundary layer problems in the case of dissociation and diffusion; Conference on Heat and Mass Transfer, Minsk, June 5-10, 1961] O vozmozhnykh metodakh reshenija zadach pogranichnogo sloia pri nalichii dissotsiatsii i diffuzii; soveshchanie po teplo-i massoobmenu, g. Minsk, 5-10 iiunia 1961 g. Minsk, 1961. 35 p. (MIRA 15:2)
(Boundary layer) (Dissociation) (Diffusion)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

GINSBURG, I. P.

"On Possible Solution Methods of Problems of a Boundary Layer at Dissociation and Diffusion."

Report submitted for the Conference on Heat and Mass Transfer, Minsk, BSSR, June 1961.

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

GINSBURG, I. P., GALANOVA, S. S., and DEMENTYEV, V. G.

"Solution of Laminar Boundary Layer Problems With Regard of Radiation and Absorption of a Medium."

Report submitted for the Conference on Heat and Mass Transfer, Minsk, BSSR, June 1961.

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

20762

S/043/61/000/001/004/010
C111/C222

10.4100

AUTHOR: Ginzburg, I.P.

TITLE: Turbulent boundary layer in a compressible fluid (gas mixture)

PERIODICAL: Leningrad. Universitet. Vestnik. Seriya matematiki, mekhaniki i astronomii, no.1, 1961, 75-88

TEXT: Starting from the semiempirical theory of turbulence the author gives an approximate solution of the problem of the determination of skin friction and heat of a plate being in a compressible fluid during a turbulent motion. Dissociation and diffusion are considered, the Prandtl number may be an arbitrary constant.
At first the author establishes the stationary boundary layer equations under consideration of the diffusion and the forces due to inertia. For the determination of the components of the friction tensor and the diffusion and heat vectors the author uses the results of the semi-empirical theory of turbulence, where the mixing ways in all cases are equated. It is assumed that there exists a laminar lower stratum, where at the boundary of it the derivatives of the velocity, of the heat content and the concentration have jumps, while the velocity, the heat content and the concentration themselves, as well as the skin friction,
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X

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

the diffusion and the heat flow remain continuous. A number of further simplifications is made, e.g. it is put

$$\frac{T}{M} = a_1 h^3 + b_1 h^2 + c_1 h + d, \tag{3.3}$$

where T -- temperature, $\frac{1}{M} = \sum_i \frac{\xi_i}{M_i}$, M_i -- molecular weight of the i-th component, $\xi_i = \frac{\rho_i}{\rho}$ -- relative mass concentration, $h = \sum_i h_i \xi_i$, h_i -- specific entalpy of the i-th component; the gas is assumed to be thermodynamically ideal; the friction stress is arranged as a quadratic polynemial in $\frac{y}{\delta}$, where y -- coordinate ⊥ to the plate, δ -- thickness of the boundary layer. The equations can be integrated under these and further assumptions. For the velocity distribution in the laminar lower stratum the author obtains

$$v_x \left\{ 1 + n \frac{\bar{B}}{2} v_x + n \frac{\bar{C}}{3} v_x^2 \right\} = \frac{\tau_w}{\mu_w} y, \tag{8.3}$$

where τ_w is the friction stress at the wall, while μ_w and n are

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

connected by the arrangement

$$\mu = \mu_w \left(\frac{h+d_1}{h_w+d_1} \right)^n , \tag{7.3}$$

where μ -- coefficient of the physical tenacity, h_w -- the h-value at the wall. The author determines: 1. The dependence of the full heat content of the velocity. 2. Velocity profile. 3. Thickness of the laminar lower stratum and the velocity at its boundary. 4. The connection between ξ and δ-thickness of the boundary layer. 5. Law of friction. 6. temperature of the surface of the plate. 7. The appearing constants.
The author mentions L.Ye.Kalikhman. There are 2 figures, 1 Soviet-bloc and 2 non-Soviet-bloc references. The reference to the English-language publication reads as follows: M.Leghthill. J. fluid mech., 2, no.1, 1957.

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

23514

S/024/61/000/003/002/012
E140/E463

16.8000 (1031, 1121, 1132)

AUTHORS: Babushkin, S.A. and Ginzburg, I.P. (Leningrad)

TITLE: On the theory of nonlinear combined and autonomous control systems

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Energetika i avtomatika, 1961, No.3, pp.14-30

TEXT: The article attempts to determine the nature of a computer (analogue) for an automatic control system in which k controllers regulate that many system coordinates, such that absolute invariance of the regulated parameters and their autonomy with respect to the other coordinates of the system be obtained. The system considered in all generality is shown in Fig.1, where A is the object, B the computer, the small blocks labelled 1, ..., ν, k are the regulators. Further y_ν (ν = 1, ..., k) are the coordinates of the object in k-space, $x_{j_\nu}^{(\nu)}$ (j_ν = 1, ..., n_ν) describe the motion of the regulators, $x_{n_\nu}^{(\nu)}$ (ν = 1, ..., k) is the action applied by the ν-th regulator to the object, $g_\nu(t)$ is the input programme to the computer, $\theta_\nu = y_\nu - g_\nu(t)$ are error signals (physically

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On the theory of nonlinear ...

measured) $f_{l_\nu}^{(\nu)}(t)$ (l_ν = 1, ..., p_ν; ν = 1, ..., k) are external perturbations acting on the object and regulators, and $x_l^{(\nu)}$ are the computed control signals. Finally, Φ_ν are the functions generated by the computer. Such a system is described by a system of differential equations consisting of three groups of equations: equations describing the motion of the controlled object and the controllers, equations describing the motion of the computer, and k equations describing the errors. It is assumed that the equations of the object are fixed while the equations of the regulators are only slightly varying. The physical measurements and their conversion to computer input signals are assumed inertialess. The object and regulator functions and their partial derivative as well as the computer functions and partial derivative are assumed continuous and bounded over the entire range of possible variation. The computer has k equations for solving the k input signals to the regulators. In these equations there are initially undetermined equations describing as yet unknown corrective networks. The problem posed by the paper can now be stated more precisely. It is required to determine the conditions placed on the computer functions Φ_ν,

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such that

$$y_\nu \equiv g_\nu(t) \qquad (\nu = 1, 2, \ldots, k) \qquad (1.2)$$

i.e. that the motion of the object identically correspond to the input programme, as well as the conditions on the equations of the individual regulators and the overall automatic control system, in order that the motion defined by this solution be stable. Such motion is termed: programme motion. Eq.(1.2) permits the system of differential equations of the general system to be simplified by elimination of the static error equations. The second section of the article is concerned with the derivation of the simplified equations. This simplification depends on the fact that for an approximately invariant system, the error terms in the object and regulator equations are negligible (which is not true for the computer equations which depend precisely on the error values). Then a subset of the equations simplify to an autonomous system of N differential equations in N variables, which can therefore be integrated independently of the remaining k equations of the system. The problem of determining the

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computer function is solved by first substituting the functions of time found for the simplified object and regulator equations in the general expression for the as yet unknown computer functions. By the formulation itself of the problem, the steady state values of the errors are arbitrarily small. Then the functions Φ_ν can be expanded close to the plane in which the errors and their derivative vanish in a Taylor series in variations of the error from this plane. This implies that absolute invariance of the system will occur only when the functions Φ_ν vanish identically and the partial derivatives with respect to the errors are bounded with substitution in them of the functions of time $\bar{x}_{j\nu}^{(\nu)}$, where the bar indicates the solution of the simplified system. Examining further the conditions placed on the functions Φ_ν, it is found that one sufficient solution to the problem is equivalent to a control system using perturbation only. No system operating on deviation alone can satisfy the criteria of absolute invariance and autonomy. The author then derives a system of variational equations which constitute the basis for the final stage of the solution. In the final section, the author examines the question of stability of the motion defined by the solution

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obtained. The stability problem reduces to the study of the stability of the zero solution of an homogeneous system of linear differential equations with variable coefficients. In a particular case the coefficients of the equations become constants. It is this particular case which is examined in detail in the article. The examination is carried out in two stages, firstly for each of the k coordinates independently and then the system as a whole. The stability conditions are expressed in terms of the roots of algebraic equations. It is found that the stability depends not only on the form of control function, but on the parameters of the controlled object and the regulators. Thus conditions can be obtained for the physical realizability of the system. A brief remark on the general case (where the stability coefficients are variable) indicates that the dependence on the system parameters holds here as well. In conclusion the author mentions various related questions which have not been treated in the article. The possibility of substantially simplifying the form of the differential equations defining the regulation function or even of excluding from these equations a part of the information

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external to the the ν-th coordinate system; the elimination of mutual couplings between the regulators; the possibility of using self-adjusting corrective networks in the computer and the inclusion of nonlinear equations in the latter. There are 3 figures and 16 references: 12 Soviet-bloc and 4 non-Soviet-bloc. The four references to English language publications read as follows: Moore, I.R. Proc.IRE, 1951, v.39, Noll, pp.1421-1432; Baksenbom, A.S., Hood, R., NACA, Rep.980, 1950; Aseltine, I.A., Manicini, A.R., Sarture, C.W., Trans. IRE on Automatic Control, PGAC-6, 1958; Margolis, M., Leondes, C.T., IRE Weson Convention Record, 1959, pt.4, p.104.

SUBMITTED: January 23, 1961

Card 6/7

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AUTHORS: Ginzburg, I.P., and Kocheryzhenkov, G.V.

TITLE: Turbulent boundary layer of heat-insulated airfoil or axisymmetric body

PERIODICAL: Leningrad. Universitet. Vestnik. Seriya matematiki, mekhaniki i astronomii, no. 4, 1961, 115 - 121

TEXT: The problem of gas flow in a turbulent boundary layer is solved by assuming Pr = 1. Velocity profile: It is assumed that the friction stress in the boundary layer can be expressed by

$$\tau = \tau_w\left\{\left[1 - \left(\frac{y}{\delta}\right)^2\right] + \omega\left[\left(\frac{y}{\delta}\right) - \left(\frac{y}{\delta}\right)^2\right]\right\}, \quad (1.1)$$

where τ_w is the shear stress at the wall, δ - the thickness of the boundary layer and y the distance from the wall;

$$\omega = \frac{\delta}{\tau_w}\frac{dp}{dx};$$

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the gas is ideal; equation

$$\frac{T}{m} = c_1 h + d \qquad (1.3)$$

holds. Hence

$$\frac{\rho}{\rho_w} = \frac{c_1 H_w + d}{c_1 h + d} = \frac{H_w + \frac{d}{c_1}}{H_w + \frac{d}{c_1} - A\frac{v_x^2}{2}}, \qquad (1.5)$$

where H_w is the heat content of unit mass outside the boundary layer. The equations of semi-empirical turbulence theory are used (in conjunction with Eqs. (1.1) and (1.5)) for obtaining the equation for the velocity profile in the turbulent boundary layer, viz.

$$\frac{\tau_w}{\rho_w}\,\frac{1 + \omega\left(\frac{y}{\delta}\right) - (1+\omega)\left(\frac{y}{\delta}\right)^2}{k^2 y^2} = \frac{H_w + \frac{d}{c_1}}{H_w + \frac{d}{c_1} - A\frac{v_x^2}{2}}\left(\frac{\partial v_x}{\partial y}\right)^2,$$

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The presence of a laminar sublayer is assumed. There one can approximately set:

$$v_x = \frac{\tau_w}{\mu_w} y + \frac{1}{\mu_w} \frac{dp}{dx} \frac{y^2}{2} . \qquad (1.7)$$

The velocity at the boundary of the laminar sublayer is

$$u_\ell = \frac{\tau_w}{\mu_w} \delta_\ell + \frac{1}{\mu_w} \frac{dp}{dx} \frac{\delta_\ell^2}{2} = \delta_\ell \frac{\tau_w}{\mu_w} \left(1 + \frac{\omega_\ell}{2}\right) = \frac{k_1}{k} \frac{\nu_w}{v_*} \frac{1 + \frac{\omega_\ell}{2}}{\sqrt{1 + \omega}} \frac{\tau_w}{\mu_w} \approx \qquad (19)$$

$$\approx \frac{k_1}{k} v_* = \frac{k_1}{k} \frac{u}{\zeta}, \text{ where } v_* = \sqrt{\frac{\tau_w}{\rho_w}} , \ \zeta = \frac{u}{v_*} .$$

The derivation is examined of relationship between τ_w and δ^{**}. By expansion in series (of arc sin $k_1/k \ \bar{u}/\zeta$) one obtains from

$$\frac{k\zeta}{\bar{u}} \left[\arcsin \frac{k_1}{k} \frac{\bar{u}}{\zeta} - \arcsin \bar{u}\right] = \ln\left(\frac{k_1}{k} \frac{e}{2} \frac{\nu_w}{u\delta} \zeta \frac{1}{\sqrt{1 + \omega_\ell}}\right) - \frac{\omega}{2} .$$

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equation

$$\frac{u\delta}{\nu_w} = D^{\frac{k_1}{k}} \frac{\xi}{\sqrt{1 + \omega_\ell}} e^{\frac{k\xi}{\bar{u}} \arcsin \bar{u}}, \text{ where } D = \frac{1}{2} e^{1-k_1-\frac{\omega}{2}}. \qquad (2.1)$$

In order to find the friction resistance of an airfoil, a second equation between δ and τ_w is required. This can be obtained from the law of conservation of momentum. For using it, one has to know the thickness δ^{**} of lost momentum and the thickness δ^* of displacement. If, in their computation, the velocity profile in the boundary layer is assumed to be that of a plate, one obtains the appropriate expressions

$$\frac{\delta^{**}}{\delta} = \int_0^1 \frac{\rho}{\rho_0} \frac{v_x}{u} \left(1 - \frac{v_x}{u}\right) d\frac{y}{\delta} = \frac{\rho_w}{\rho_0} I, \qquad (22)$$

where $(\bar{H}_w = 1)$

$$I = \frac{1}{k\zeta} \frac{1}{\sqrt{1-\bar{u}^2}} - \frac{1}{(k\zeta)^2} \frac{2+\bar{u}^2}{1-\bar{u}^2} + \frac{1}{(k\zeta)^3} \frac{\bar{u}^2(\bar{u}^2+2)}{(1-\bar{u}^2)^{3/2}} + \dots$$

$$\frac{\rho_w}{\rho_0} = 1 - \bar{u}^2$$

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and
$$\frac{\delta^*}{\delta^{**}} = \frac{1 + \bar{u}^2}{1 - \bar{u}^2} + \frac{1}{k\zeta}\frac{1}{\sqrt{1 - \bar{u}^2}} + \dots \qquad (2.3)$$

If the influence of the longitudinal pressure gradient is taken into account, then

$$\frac{u\delta^{**}}{\nu_w} = \frac{\rho_w}{\rho_0}\frac{u\delta}{\nu_w}\frac{k(\omega)}{k\zeta}\frac{1}{\sqrt{1-\bar{u}^2}} = \frac{\rho_w}{\rho_0} D \frac{k_1}{k^2} k(\omega) \frac{e^{\frac{k\zeta}{\bar{u}}\arcsin\bar{u}}}{\sqrt{1+\omega_\lambda}\sqrt{1-\bar{u}^2}}, \qquad (2.6)$$

where
$$\bar{u} = \frac{u}{\sqrt{\frac{2\left(H_w + \frac{d}{c_1}\right)}{A}}}, \quad H_w = H_0.$$

Determination of friction law: In order to find the friction law, i.e. the dependence of ζ on x, the equation

$$\frac{1}{r^\varepsilon}\frac{d}{dx}\left(r^\varepsilon \rho_0 u^2 \delta^{**}\right) + \rho_0 u \frac{du}{dx}\delta^* = \tau_w \qquad (3.1)$$

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is used which expresses the momentum law; $\varepsilon = 0$ for an airfoil and $\varepsilon = 1$ for an axisymmetric body. One obtains

$$\frac{d}{dx}\left(\frac{\rho_0}{\rho_\infty}\frac{u\delta^{**}}{\nu_\infty}\right) + \frac{u'}{u}\frac{\rho_0}{\rho_\infty}\frac{u\delta^{**}}{\nu_\infty}\left(1 + \frac{\delta^{*}}{\delta^{**}} + \frac{u}{u'}\frac{d\ln r^{\varepsilon}}{dx}\right) = \frac{u}{\zeta^2}\frac{1}{\nu_\infty}\frac{\rho_w}{\rho_\infty}, \qquad (3.2)$$

where

$$\frac{\rho_0}{\rho_\infty}\frac{u\delta^{**}}{\nu_\infty} = \frac{\rho_0}{\rho_\infty}R^{**}$$

This equation is solved by the method of successive approximation. Setting

$$D\frac{k_1}{k^2}\frac{1}{\sqrt{1 - \bar{u}^2}} = f_1(x), \quad \frac{k}{\bar{u}}\arcsin\bar{u} = f_2(x),$$

one obtains

$$\ln\frac{\rho_0}{\rho_\infty}R^{**} = \ln f_1(x) + \zeta f_2(x). \qquad (3.3)$$

For the determination of $Z = \rho_0/\rho_\infty\, R^{**}$, one obtains

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$$Z^{n_1-1}\frac{dZ}{dx}+\frac{u'}{u}Z^{n_1}\left(1+\frac{\delta^*}{\delta^{**}}+\frac{u}{u'}\frac{d\ln r'}{dx}\right)=\frac{F_2(x)}{n_2}. \quad (3.4)$$

where

$$F_2(x)=n_2\frac{u}{\nu_\infty}f_1^{n_1-1}f_2^2e^{-n_1}\frac{\rho_w}{\rho_\infty}.$$

If δ^*/δ^{**} is considered as a known function of x, then Eq. (3.4) is a linear differential equation whose solution is

$$Z^{n_1}=e^{-\int F_1(x)\,dx}\left\{C+\int_0^x F_2(x)\,e^{\int F_1(x)\,dx}\,dx\right\}. \quad (3.5)$$

In the case of a plate ($\bar{u}' = 0$), one obtains for the friction coefficient

$$C_f=2\frac{\delta^{**}_{x=l}}{l}=\frac{2}{l}\frac{\nu_\infty}{u}Z_l\frac{\rho_\infty}{\rho_0}= \quad (3.6)$$

$$=2k^{\frac{2}{n_1}}e^{-\frac{n_1}{n_1}}\left(\frac{ul}{\nu_0}\right)^{\frac{1-n_1}{n_1}}\left(\frac{\arcsin\bar{u}}{\bar{u}}\right)^{\frac{2}{n_1}}(1-\bar{u}^2)^{\frac{1-n_1}{2n_1}}\left(D\frac{k_1}{k_2}\right)^{\frac{n_1-1}{n_1}}n_2^{\frac{1}{n_1}}\left(\frac{\mu_w}{\mu_0}\right)^{\frac{n_1-1}{n_1}}\left(\frac{\rho_w}{\rho_0}\right)^{\frac{1}{n_1}}.$$

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If $\mu_0/\mu_w = h_0/H_w^h$, then

$$C_f = 2k^{\frac{2}{n_1}} e^{-\frac{n_1}{n_0}} \left(\frac{ul}{\nu_0}\right)^{\frac{1-n_1}{n_1}} \left(D\frac{k_1}{k^2}\right)^{1-\frac{1}{n_1}} \left(\frac{\arcsin \bar{u}}{\bar{u}}\right)^{\frac{2}{n_1}} (1-u^2)^{\frac{3}{2n_1}-\frac{1}{2}-n\frac{n_1-1}{n_1}} n_2^{\frac{1}{n_1}}. \tag{3.7}$$

There are 3 Soviet-bloc references.

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APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

GINZBURG, I.P.; KOCHERYZHENKOV, G.V.

Turbulent boundary layer of a thermally insulated wing or axisymmetrical body. Vest.LGU 16 no.19:115-121 '61. (MIRA 14:10)
(Aerodynamics)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

AID Nr. 986-5 10 June

TURBULENT BOUNDARY LAYER ON THERMALLY NONINSULATED WING (USSR)

Ginzburg, I. P., and G. V. Kocheryzhenkov. IN: Leningrad. Universitet. Vestnik, no. 7. Seriya matematiki, mekhaniki i astronomii, no. 2, 1963, 86-98. S/043/63/007/002/003/008

An approximate solution is presented of the problem of a turbulent boundary layer on a thermally noninsulated wing or an axisymmetrical body in compressible hypersonic flow. The method is based on two previous papers and requires the assumption that the velocity dependence of total enthalpy in the turbulent region of the boundary layer and in the laminar sublayer can be expressed as a quadratic function of v_x in the form

$$H = A_1 + Bv_x + Cv_x^2$$ in the turbulent region, and

$$H = Hw + B_1 v_x + C_1 v_x^2$$ in the laminar sublayer.

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AID Nr. 986-3 10 June

TURBULENT BOUNDARY LAYER [Cont'd] S/043/63/007/002/003/008

The velocity profiles are determined, the relationship between friction stress τ_w and thickness of momentum loss δ^{**} is described, and expressions for drag and local skin friction coefficient are established. The calculation procedure is outlined for a numerical example of a spherical body with a radius of 20 cm in an air flow of M = 20 with stagnation point-temperature T_{00} = 7000°. The results are plotted in graphs. [ANB]

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APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

LYKOV, A.V., akademik, red.; SMOL'SKIY, B.M., doktor tekhn. nauk, prof., red.; GINZBURG, I.P., doktor fiz.-matem. nauk, prof., red.; ZABRODSKIY, S.S., doktor tekhn. nauk, red.; KONAKOV, P.K., doktor tekhn. nauk, prof., red.; KOSTERIN, S.I.,doktor tekhn. nauk, prof., red.; SHUL'MAN, Z.P., inzh., otv. za vypusk; KORIKOVSKIY, I.K., red.; LARIONOV, G.Ye., tekhn. red.

[Heat and mass transfer] Teplo- i massoperenos. Moskva, Gosenergoizdat. Vol.3.[General problems of heat transfer] Obshchie voprosy teploobmena. 1963. 686 p. (MIRA 16:6)

1. Akademiya nauk Belorusskoy SSR (for Lykov).
(Heat--Transmission) (Mass transfer)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

GINZBURG, I.P.; KOCHERYZHENKOV, G.V.

Turbulent boundary layer of a nonthermally insulated wing or axisymmetric body in a compressible fluid. Vest.LGU 18 no.7: 86-98 '63. (MIRA 16:4)

(Aerothermodynamics) (Boundary layer)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

VERESHCHAGINA, L.I.; GINZBURG, I.P., prof., rukovoditel' raboty

Base pressure for solids of revolution in supersonic gas flow.
Vest. LGU 18 no.13:139-143 '63. (MIRA 16:9)
(Aerodynamics, Supersonic)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

ACCESSION NR: AP4044416 S/0170/64/000/008/0064/0074

AUTHOR: Ginzburg, I. P.

TITLE: The relationship between heat content and velocity in the boundary layer of flowing gas

SOURCE: Inzhenerno-fizicheskiy zhurnal, no. 8, 1964, 64-74

TOPIC TAGS: boundary layer, heat transfer, Prandtl number, laminar flow, turbulent flow, Lewis number

ABSTRACT: An approximate relationship between heat content h and flow velocity v_x for arbitrary values of Pr in turbulent as well as in physical flows was established using the boundary layer equations in Crocco variables. On the assumption that $Le_1 = 1$ and $\rho\mu$ = const in the boundary layer, general expressions are derived for the coefficients $R(\phi, \xi)$ and $S(\phi, \xi)$

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$$S(\varphi, \xi) = \frac{1}{\Pr(0)} \int_0^{\varphi} \Pr \exp\left(-\int_0^{\varphi} \frac{1-\Pr}{\omega} \frac{\partial \omega}{\partial \varphi} d\varphi\right) d\varphi;$$

$$R(\varphi, \xi) = 2 \int_0^{\varphi} \Pr \exp\left(-\int_0^{\varphi_1} \frac{(1-\Pr)}{\omega} \frac{\partial \omega}{\partial \varphi} d\varphi\right) \times$$

$$\times \int_0^{\varphi_1} \exp\left(\int_0^{\varphi} \frac{1-\Pr}{\omega} \frac{\partial \omega}{\partial \varphi} d\varphi\right) d\varphi_1$$

, where $\phi = v_x/u$, $w = \tau_{xy}/\tau_w$ and for $\phi = 1$, R becomes the recovery factor. The values of $R(1, \xi)$ and $S(1, \xi)$ are then determined for laminar boundary layers-

$$S(1) = \Pr^{-1/3}, \quad R(1) = \sqrt{\Pr};$$

turbulent boundary layer, assuming a sublayer -

$$S(1) = \frac{1}{\Pr_A}[1 - (1 - \Pr_A)\varphi_A], \quad R(1) = 1 - (1 - \Pr_A)\varphi_A^2,$$

turbulent boundary layers assuming Van-Driest's three-layer approximation, and

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turbulent boundary layer with power law velocity distribution of Sakodnik and Karotnikov. Finally, S and R are calculated for Pr ≠ 1 with the result

$$S(1)=\varphi_{\text{л}}\left(1-\frac{Pr_{\text{т}}}{Pr_{\text{л}}}\right)+$$

$$+\frac{Pr_{\text{т}}}{Pr_{\text{л}}}\,\frac{\Gamma(Pr_{\text{т}})\Gamma(1/3)}{\Gamma(Pr_{\text{т}}+1/3)}$$, and $$R(1)=Pr_{\text{л}}\varphi_{\text{л}}^2-Pr_{\text{т}}\varphi_{\text{л}}^2+2Pr_{\text{т}}I(Pr_{\text{т}})$$, where

$$I(Pr_{\text{т}})=\int_0^1(1-\varphi^3)^{Pr_{\text{т}}-1}\left[\int_0^{\varphi}(1-\varphi^3)^{1-Pr_{\text{т}}}d\varphi\right]d\varphi$$, for Pr = 1 in the presence of flow injection at the wall the values of R and S take a modified form given by

$$S(1)=S(\varphi_{\text{л}})+\frac{1}{Pr_{\text{л}}}\,\omega_{\text{л}}^{Pr_{\text{л}}-1}\,(1-\varphi_{\text{л}}),$$

$$R(1)=R(\varphi_{\text{л}})+(1-\varphi_{\text{л}}^2).$$ These results show the effect of Pr (turbulent and laminar) on heat transfer to the walls from the boundary layer and establish a relationship between h and v_x. Orig. art. has: 66 formulas and 2 figures.

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ACCESSION NR: AP4044416

ASSOCIATION: Gosudarstvenny*y universitet im A. A. Zdanova g. Leningrad (Leningrad State University)

SUBMITTED: 22Nov63

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SUB CODE: ME,TD

NO REF SOV: 005

OTHER: 000

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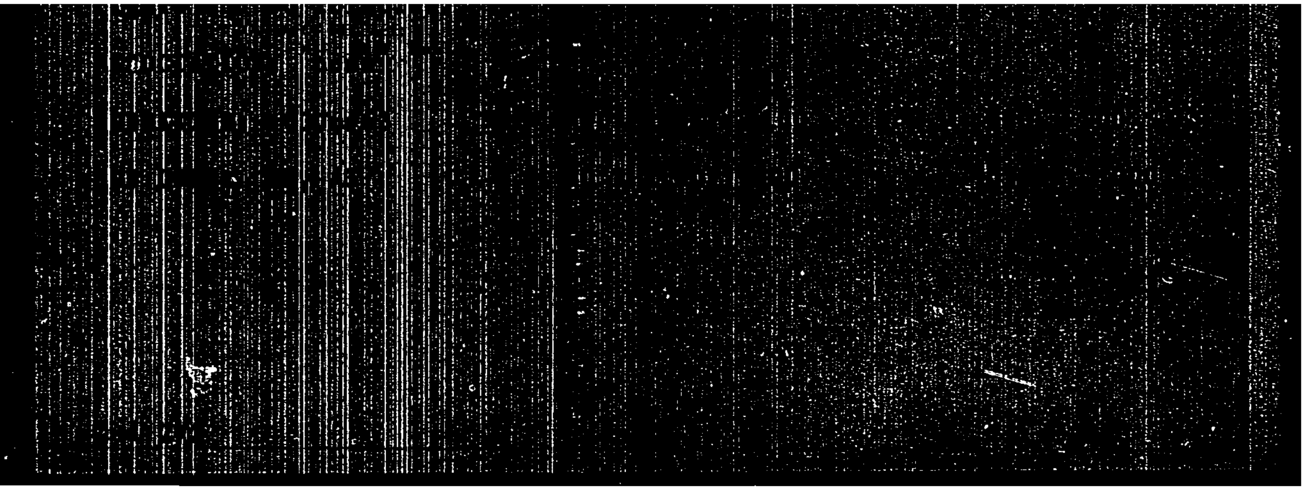
GINZBURG, I.P. (Leningrad)

"On the solution of problems of the turbulent boundary layer in a compressible fluid-gas mixture".

report presented at the 2nd All-Union Congrss on Theoretical and Applied Mechanics, Moscow, 29 Jan - 5 Feb 64.



GINZBURG, I. P.

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

"Methods of solution of turbulent boundary layer problems for a mixture of gases."

report submitted for 2nd All-Union Conf on Heat & Mass Transfer, Minsk, 4-12 May 1964.

Sci Res Inst of Mathematics & Mechanics, Leningrad State Univ.

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

GINZBURG, I.P.

Relation between the enthalpy and velocity of a gas moving in a boundary layer. Inzh.-fiz. zhur. 7 no.8:64-74 Ag '64. (MIRA 17:10)

1. Gosudarstvennyy universitet im. A.A. Zhdanova, Leningrad.

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

VALIANDER, S.V.; GINZBURG, I.P.; POLYAKOV, N.N.; YUSHKOV, P.P.

Konstantin Ivanovich Strakhovich, 1905- ; on his 60th birthday. Inzh.-fiz. zhur. 8 no.3:409-410 Mr '65.

(MIRA 18:5)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

L 5153-66 EWT(1)/EWP(m)/EWT(m)/EWP(w)/EPF(c)/ETC/EPF(n)-2/EWG(m)/EWA(d)/T/EWP(t)/FCS(k)/EWP(b)/EWA(1) JD/WW/DJ

ACCESSION NR: AP5020937 UR/0170/65/009/002/0155/0162 82
532.517.4 79
B

AUTHOR: Ginzburg, I. P.; Korneva, I. V.

TITLE: The effect of the turbulent number Pr_τ on the friction and heat transfer of a plate in turbulent gas flow

SOURCE: Inzhenerno-fizicheskiy zhurnal, v. 9, no.2, 1965, 155-162

TOPIC TAGS: friction coefficient, heat transfer, plate, turbulent flow, gas flow, Prandtl number

ABSTRACT: The following expression was obtained elsewhere (Ginzburg, I. P. IFZh, No. 8, 1964.) to determine the relationship between the heat content and flow rate in the case of nongradient flow at arbitrary Pr_L and Pr_τ (where L and τ are laminar and turbulent flow, respectively):

$$\bar{h} = \bar{h}_w + \left(\frac{\partial \bar{h}}{\partial \varphi}\right)_w S(\varphi) - \bar{u}^2 R(\varphi), \qquad (1)$$

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where

$$S(\varphi)=\int_0^{\varphi}\exp\left\{-\int_0^{\varphi}\frac{\mathrm{Pr}}{\omega}\,\frac{\partial\omega(1/\mathrm{Pr}-1)}{\partial\varphi}\,d\varphi\right\}d\varphi,$$

$$R(\varphi)=2\int_0^{\varphi}\exp\left(-\int_0^{\varphi_1}\frac{\mathrm{Pr}}{\omega}\,\frac{\partial\omega(1/\mathrm{Pr}-1)}{\partial\varphi}\,d\varphi\right)\left\{\int_0^{\varphi_1}\mathrm{Pr}\left[\exp\int_0^{\varphi}\frac{\mathrm{Pr}}{\omega}\times\right.\right.$$

$$\left.\left.\times\frac{\partial\omega(1/\mathrm{Pr}-1)}{\partial\varphi}\,d\varphi\right]d\varphi\right\}d\varphi_1, \quad (1a)$$

$$\omega=\tau/\tau_w,\quad \varphi=v_x/u,\ \bar{h}=h/H_0,\ \bar{u}^2=u^2/2H_0.$$

The present authors use this expression and the basic premises in the semiempiric theory of turbulence to evaluate the effect of the Pr_τ number on the friction and heat transfer coefficient of a plate. Orig. art. has: 18 numbered formulas.

Card 2/3

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L 5153-66
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3

ASSOCIATION: Gosudarstvennyy universitet im. A. A. Zhdanova, Leningrad (Leningrad State University) 44 65

SUBMITTED: 22Sep64 ENCL: 00 SUB CODE: ME, TD

NO REF SOV: 002 OTHER: 000

Card 3/3 kd

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L 7827-66 EWT(1)/EWP(m)/EPF(c)/ETC/EPF(n)-2/EWG(m)/FCS(k)/EWA(1) WW

ACC NR: AP5026851 SOURCE CODE: UR/0170/65/009/004/0444/0450

AUTHOR: Ginzburg, I. P.; Krest'yaninova, N. S.

44,55 44,55 69

ORG: State University im. A. A. Zhdanov, Leningrad (Gosudarstvennyy universitet)

44,55 B

TITLE: The turbulent boundary layer on a plate in an incompressible fluid with blowing of a substance

SOURCE: Inzhenerno-fizicheskiy zhurnal, v. 9, no. 4, 1965, 444-450

TOPIC TAGS: turbulent boundary layer, heat transfer, incompressible flow, Reynolds number

21,44,55

ABSTRACT: The effect of blowing on surface friction and heat transfer in the case of a turbulent boundary layer has been treated previously. To solve the resulting euqations, certain supplementary assumptions were made as to the thickness of the laminar sublayer or as to the velocities at its boundary. The present article considers the effect of blowing on the parameters of the boundary layer and on friction, on the basis of the two-layer scheme of the semiempirical theory of turbulence. To confirm the validity of the limiting (boundary) laws proposed previously, and to simplify the calculations, the present article considers the case of an incompressible fluid. The article develops an approximate numerical solution of the basic equa-

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tions. The dependence of the relative friction coefficient on the blowing parameter is shown in a figure. The results calculated by the proposed scheme, with a finite Re_x number, are shown to be closer to experimental results than the results of previous work. In the limiting case when Re_x approaches infinity, the results coincide. Orig. art. has: 25 formulas, 3 figures and 1 table

SUB CODE: ME/ SUBM DATE: 18Jan65/ ORIG REF: 005/ OTH REF: 002

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GINZBURG, I. S.

"Chronic Ulcerative Gingivitis," Stomatologiya, No.1, 1952

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

GINZBURG, I.S., dotsent, kandidat meditsinskikh nauk; NOVIK, I.O., dotsent, zaveduyushchiy; GORCHAKOV, A.K., professor, direktor.

Pathogenic therapy of ulcerative stomatitis. Stomatologiia no.4:10-15 Jl-Ag '53. (MLRA 6:9)

1. Kafedra terapevticheskoy stomatologii Kiyevskogo meditsinskogo stomatologicheskogo instituta (for Novik). 2. Kiyevskiy meditsinskiy stomatologicheskiy institut (for Gorchakov). (Stomatitis)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

GINZBURG, I.S., kandidat meditsinskikh nauk

Role of vascular changes in the periodontal tissues in the pathogenesis of paradontosis. Stomatologiia, no.3:12-16 My-Je '54
(MLRA 7:6)

1. Iz kafedry terapevticheskoy stomatologii(zav. dotsent I.O. Novik) i kafedry patologicheskoy anatomii (zav. prof. I.M. Peysakhovich) Kiyevskogo meditsinskogo stomatologicheskogo instituta (dir. prof. A.K.Gorchakov)
(PERIODONTIUM, diseases,
*pathogen., periodontal vasc. changes)
(PERIODONTIUM, blood supply,
*vasc. changes in pathogen. of periodontosis)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

GINZBURG, I.S.

Pathogenesis and therapy of hypertrophic gingivitis. Stomatologiia no.4:63-64 Jl-Ag '55. (MLRA 8:10)

1. Iz kafedry terapevticheskoy stomatologii (zav.dotsent I.O.Novik) Kiyevskogo meditsinskogo stomatologicheskogo instituta.
(GUMS--DISEASES)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

NOVIK, I.O., prof.; GINZBURG, I.S., dotsent (Kiyev)

"Principles of the pathological anatomy of the oral cavity and teeth" by I.M. Peisakhovich. Reviewed by I.O. Novik, I.S. Ginzburg. Vrach. delo no.4:431-433 Ap '59. (MIRA 12:7)
(STOMATOLOGY) (PEISAKHOVICH, I.M.)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

GINZBURG, I.S.; NASIROV, A.B.

Some peculiarities in the pathogenesis and clinical aspects of tuberculous lymphadenitis with an external and mesenterial localization. Azerb.med.zhur. no.2:14-18 F '60. (MIRA 13:5)
(LYMPHATICS--TUBERCULOSIS)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

VAYSBLAT, Solomon Naumovich, zasl. deyatel' nauki USSR, prof.; GINZBURG, I.S., red.; BYKOV, N.M., tekhn. red.

[Local anesthesia for operations on the face, the jaws, and the teeth]Mestnoe obezbolivanie pri operatsiiakh na litse, cheliustiakh i zubakh. Kiev, Gosmedizdat USSR, 1962. 468 p. (MIRA 16:3)

(LOCAL ANESTHESIA) (FACE--SURGERY)
(JAWS--SURGERY) (ANESTHESIA IN DENTISTRY)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

GINZBURG, I.S. prof., zasluzhennyy deyatel' nauki; KAFAROV, K.I., aspirant.

Phlegmon in the newborn and infants during the first year of life. Azerb. med. zhur. no.1:7-11 Ja '62. (MIRA 16:5)

1. Iz kafedry II gospital'noy i detskoy khirurgii pediatricheskogo fakul'teta (zav.-prof. I.S.Ginzburg) Azerbaydzhanskogo gosudarstvennogo meditsinskogo instituta imeni N.Narimanova (rektor zasluzhennyy deyatel' nauki, prof. B.A. Eyvazov).

(CONNECTIVE TISSUES—DISEASES) (INFANTS—DISEASES)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

GINZBURG, I.S. (Kiyev)

Some characteristics of paradentium vascularization and its clinical significance. Probl.stom. 6:36-41 '62. (MIRA 16:3)
(GUMS--BLOOD SUPPLY)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120018-8"

NOVIK, Isaak Osipovich, prof.; GINZBURG, I.S., red.

[Periodontosis; pathogenesis, clinical aspects and treatment] Parodontoz; patogenez, klinika i lechenie. 2., ispr. i dop. izd. Kiev, Zdorov'ia, 1964. 325 p. (MIRA 17:12)